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10/822,848	04/13/2004	Hajime Kimura	0756-7292	3205
31780	7590	12/11/2007	EXAMINER	
ERIC ROBINSON			XIAO, KE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/822,848	<b>Applicant(s)</b> KIMURA, HAJIME	
	<b>Examiner</b> Ke Xiao	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-121 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-121 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/13/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claim 1 of U.S. Patent No. 6,724,012 in view of Resman (US 6,480,305).

Side by side comparison

Pending Application: Claim 1	US 6,724,012: Claim 1
A semiconductor device comprising:	A semiconductor device comprising:
a pixel portion comprising a plurality of pixels;	a pixel portion comprising a plurality of pixels and connected to the output switching circuit
a signal line driver circuit; and	a signal line driver circuit; and
an output switching circuit,	an output switching circuit connected to the signal line driver circuit
wherein each of the plurality of pixels comprises a sensor portion and a liquid crystal element portion,	wherein each of the plurality of pixels comprises a sensor portion and a light emitting element portion,

wherein the signal line driver circuit outputs a timing signal to the output switching circuit, and	wherein the signal line driver circuit outputs a timing signal to the output switching circuit, and
wherein the output switching circuit outputs different signals to the sensor portion and to the liquid crystal element portion.	wherein the output switching circuit outputs different signals to the sensor portion and to the light emitting element portion.

The pending Claim 1 fails to teach

an output switching circuit connected to the signal line driver circuit, however this is an inherent trait, because the signal line driver circuit outputs a timing signal to the output switching circuit;

a pixel portion comprising a plurality of pixels and connected to the output switching circuit, this is also an inherent trait because the output switching circuit outputs different signals to the sensor portion and to the liquid crystal element portion which is part of the pixel portion; and

wherein each of the plurality of pixels comprises a light emitting element portion, and wherein the output switching circuit outputs different signals to the sensor portion and to the light emitting element portion.

Resman teaches the use of a liquid crystal elements in combination with light emitting elements in the same field of endeavor (Resman, Figs. 1-2), therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use either one or both of "light emitting element(s)" or "liquid crystal element(s)" because they would allow for the display device to operate as a scanner.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-7, 32-49, 72-103 and 116-121** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shodo (US 6,404,137) in view of Resman (US 6,480,305).

Regarding **Claims 1-7 and 100-103**, Shodo teaches a semiconductor device (Shodo, Col. 2 lines 63-68) comprising:

- a pixel portion comprising a plurality of pixels (Shodo, Fig. 2);
- a signal line driver circuit (Shodo, Fig. 2, first shift register); and
- an output switching circuit (Shodo, Fig. 2 element 9);

wherein each of the plurality of pixels comprises a sensor portion and a light emitting element portion (Shodo, Figs. 1-2 elements 1 and 2),

wherein the sensor portion comprises a first TFT, and the light emitting element portion comprises a second TFT (Shodo, Fig. 2 elements 41 and 42),

wherein the output switching circuit comprises a first logical circuit and a second logical circuit (Shodo, Fig. 2 element 9),

wherein the first TFT is connected to one of the first logical circuit and the second circuit, and the second TFT is connected to the other (Shodo, Fig. 2, elements 9 and 41-42),

wherein the signal line driver circuit outputs a timing signal to the first logical circuit and to the second logical circuit (Shodo, Fig. 2 first shift register outputs timing to element 9),

wherein an image signal generated by the sensor portion is input to the light emitting element portion (Shodo, Fig. 2 element 32 feedback circuit to the light emitting element portion),

wherein one of the first logical circuit and the second logical circuit outputs a first signal to the first TFT, and the other outputs a second signal to the second TFT (Shodo, Fig. 2 elements 9 and 41-42),

wherein the first signal is different from the second signal (Shodo, Fig. 2 clearly the signals are different),

wherein one of the first logical circuit and the second logical circuit outputs an off signal to the first signal line, and the other outputs a pulse signal to the second signal line (Shodo, Fig. 2, when the light emitting element is turned off there is an off signal

applied to the gate of 41, additionally if the sensor is turned on there inherently needs to be a pulse signal applied to the gate of 42), and

wherein the first signal line outputs the off signal to the first TFT, and the second signal line outputs the pulse signal to the second TFT (Shodo, Figs. 1 and 2 elements 9, 41 and 42).

Shodo fails to teach a liquid crystal element portion as well as a backlight as claimed. Resman teaches that in the same field of endeavor a liquid crystal element with a backlight light emitting element can be used instead of just a light emitting element in the pixel portion (Shodo, Fig. 2 and 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the liquid crystal element and backlight of Resman in the display device of Shodo in order to allow for the display device of Shodo to further operate as a scanner.

Regarding **Claims 32-37**, Shodo further teaches that the first signal line can be any one of a selection signal line, a reset signal line, and a liquid crystal selection signal line, and the second signal line can be any one of a sensor selection signal line and a sensor reset line (Shodo, Fig. 2 elements 7 and 8, 7 can operate as both selection as well as reset depending on the signal provided, and 8 can operate as both sensor select or sensor reset depending on the signal provided).

Regarding **Claims 38-49**, Shodo further teaches that the first TFT can be any one of a selection TFT, a reset TFT, and a liquid crystal selection TFT, and the second TFT can be any one of a sensor selection, sensor reset TFT (Shodo, Fig. 2 elements 41

and 42, 41 can operate as both selection TFT as well as reset depending on the signal provided, and 42 can operate as both sensor select or sensor reset depending on the signal provided, and as mentioned in the previous rejection of Claims 1-7, the light emitting element section can easily be replaced with a liquid crystal element section).

Regarding **Claims 79-85, 116 and 117**, Shodo further teaches a display device using the above claimed semiconductor device (Shodo, Col. 1 lines 15-25).

Regarding **Claims 86-92, 118 and 119**, Resman further teaches that the semiconductor device can be also be used as a scanner (Resman Figs. 1 and 2).

Regarding **Claims 93-99, 120 and 121**, Shodo further teaches a portable information terminal using the above claimed semiconductor device (Shodo, Col. 1 lines 15-25, small self-illuminated device).

Regarding **Claims 72-78**, Shodo in view of Resman teaches that each pixel comprises one light emitting element and one photoelectric conversion element. Shodo in view of Resman fails to teach that each pixel comprises three light emitting elements. The examiner takes official notice that it is well known in the art to use three light emitting elements in a single pixel for the purposes of color reproduction, specifically red green and blue subpixels. It would have been obvious to one of ordinary skill in the art at the time of the invention to have three light emitting elements instead of one as taught by Shodo and Resman in order to easily produce a color image.



**Claims 8-31, 50-61 and 104-115** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shodo (US 6,404,137) in view of Resman (US 6,480,305) as applied to Claims 1-7, 32-49, 79-103 and 116-121 in further view of Kubota (US 7,196,699).

Regarding **Claims 8-31, 104-111**, Shodo teaches a generic shift register with an output switching circuit (Shodo, Figs. 1 and 2). Shodo fails to teach that one of the first logical circuit and the second logical circuit is a NAND or AND circuit and the other is a NOR, or OR circuit. Kubota teaches the use of NAND, AND, NOR or OR gates as switching devices for outputs to the shift registers (Kubota, Fig. 75). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the specialized shift register and switching section of Kubota instead of the generic shift registers of Shodo in order to reduce power consumption.

Regarding **Claims 50-61 and 112-115**, Shodo teaches a generic shift register with an output switching circuit (Shodo, Figs. 1 and 2). Shodo fails to teach that output terminals of each of the first and second logical circuits is connected to at least one inverter circuit. Kubota teaches a specialized shift register circuit with a switching section wherein the output terminals of all switching circuits are connected to at least one inverter circuit (Kubota, Fig. 75). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the specialized shift register and switching section of Kubota instead of the generic shift registers of Shodo in order to reduce power consumption.

**Claims 62-64**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shodo (US 6,404,137) in view of Resman (US 6,480,305) as applied to Claims 1-7, 32-49, 79-103 and 116-121 in further view of Chiyou (JP 11125841) and Nishigaki (US 6,246,180).

Regarding **Claims 62-64**, Shodo in view of Resman teaches a plurality of pixels comprising a light emitting element, a selection TFT, a driver TFT (Shodo, Fig. 2 elements 41 and driver TFT), and a photoelectric conversion element and a sensor selection TFT (Shodo, Fig. 2 element 42). Shodo in view of Resman fails to teach a sensor driver TFT and a sensor reset TFT.

Chiyou teaches a display scanner hybrid device with a photoelectric conversion element and a sensor TFT, a sensor driver TFT and a sensor reset TFT (Chiyou, Fig. 10 elements T1-T3 and 1001). It would have been obvious to use the pixel sensor circuitry of Chiyou in the display scanner device of Shodo and Resman in order to increase the sensors sensitivity by adding the sensor driver TFT and the sensor reset TFT.

Shodo in view of Resman and Chiyou fails to teach a reset TFT as claimed. Nishigaki teaches a light emitting display device using a reset TFT (Nishigaki, Fig. 4 element 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the reset TFT in conjunction with the display device of Shodo in view of Resman and Chiyou in order to provide improved image quality.

**Claims 65-71**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shodo (US 6,404,137) in view of Resman (US 6,480,305) as applied to Claims 1-7, 32-49, 79-103 and 116-121 in further view of Chiyou (JP 11125841).

Regarding **Claims 65-71**, Shodo in view of Resman teaches a plurality of pixels comprising a light emitting element, a selection TFT, a driver TFT (Shodo, Fig. 2 elements 41 and driver TFT), or a liquid crystal element, a liquid crystal selection TFT (Resman, Fig. 2 elements 124 and 128), and a photoelectric conversion element and a sensor selection TFT (Shodo, Fig. 2 element 42). Shodo in view of Resman fails to teach a sensor driver TFT and a sensor reset TFT.

Chiyou teaches a display scanner hybrid device with a photoelectric conversion element and a sensor TFT, a sensor driver TFT and a sensor reset TFT (Chiyou, Fig. 10 elements T1-T3 and 1001). It would have been obvious to use the pixel sensor circuitry of Chiyou in the display scanner device of Shodo and Resman in order to increase the sensors sensitivity by adding the sensor driver TFT and the sensor reset TFT.

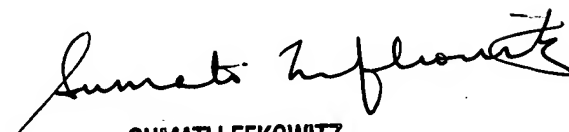
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571)272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 6, 2007 - kx -

  
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